UNIVERSITY OF GONDAR

COLLEGE OF MEDICINE & HEALTH SCIENCES

INSTITUTE OF PUBLIC HEALTH

DIETARY PRACTICE AND ASSOCIATED FACTORS AMONG TYPE 2 DIABETIC PATIENTS IN YEKATIT 12 MEDICAL COLLEGE HOSPITAL, ADDIS ABABA, ETHIOPIA.

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Dietary Practice and Associated Factors Among Type II Diabetic Patients in Yekatit 12 Medical College Hospital, Addis Ababa, Ethiopia.

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Acronyms

AA: Addis Ababa

ADA: American Diabetes Association

AOR: Adjusted Odds Ratio

BMI: Body Mass Index

COR: Crude Odds Ratio

CSA: Central Statistical Agency

DM: Diabetes Mellitus

EDA: Ethiopian Diabetes Association

IDF: International Diabetes Federation

MNT: Medical Nutrition Therapy

NCD: Non Communicable Disease

OPD: Out Patient Department

SADA: South African Diabetes Association

SPSS: Statistical Package for Social Sciences

UK: United Kingdom

WHO: World Health Organization

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Abstract

Introduction: Dietary management which is considered to be one of the cornerstones of diabetes care is based on the principle of healthy eating in the context of social, cultural and psychological influences on food choice. A type II diabetes diet and following the right meal plan can make all the difference to a person struggling to keep his/her blood sugar under control.

Objective: To assess level of dietary practice and its associated factors among type II diabetic patients from Yekatit 12 Medical College Hospital, Addis Ababa, Ethiopia.

Methods: Institution based cross-sectional quantitative study design was employed. A total of 403 study subjects were included in the study. Pretested questionnaire were used to collect the data. The collected data were entered in to Epi Info version 3.5.3 and exported to SPSS version 20.0 software packages for further statistical analysis. The data was analyzed using bivariate and multivariate logistic regression. The degree of association between dependent and independent variables were assessed using odds ratio with 95%confidence interval and p-value ≤0.05.

Results: About 73% of the patients did not check their fasting blood glucose on a daily basis. About 46.4 % of the study subjects were overweight and obese. More than half of the respondents (58.8%) had FBG level ≥ 126mg/dl. The level of dietary practice among 207 (51.4%) type II diabetic patients was poor. Not getting nutrition education in hospitals [AOR=4.47, 95%CI: (1.92,10.40)], having depression [AOR= 2.15, 95% CI: (1.14,4.02)], difficulty to choose foods [AOR= 9.66 ,95%CI: (5.12,18.24)], non- availability of fruits and vegetables [AOR= 2.78, 95%CI: (1.03,7.54)], thinking about high cost of foods [AOR= 2.36,95%CI: (1.18, 4.70)] were the factors significantly associated with the poor dietary practice .

Conclusion and recommendations: findings of this study indicated that majority patients had poor dietary practice. Therefore, the integration of diabetic based nutrition education with motivation and home gardening is highly recommended.

Key words: Type II Diabetes, Dietary Practice, Yekatit 12 Hospital, Addis Ababa, Ethiopia.

1. INTRODUCTION

1.1 Statement of the problem

Diabetes mellitus is a metabolic disease, characterized by hyperglycemia (increased concentration of blood glucose) and disturbance of glucose metabolism, as a result of reduced secretion or insulin resistance or both (1).

Diabetes is one of the rapidly increasing non-communicable diseases and an important public health problem all over the world. According to the International Diabetes Association(IDF) diabetes Atlas 6th edition 382 million people have diabetes in 2013; by 2035 this will rise to 592 million (2).

The Sub-Saharan Africa, like the rest of the world, is experiencing an increasing prevalence of diabetes alongside other non-communicable diseases. In 2010, about 12.1 million people were estimated to be living with diabetes in Africa, and this is projected to increase to 23.9 million by 2030 (3).

Ethiopia, which is one of the developing nations, is at a risk of increased diabetes incidence. The number of deaths attributed to diabetes reached over 21,000 in 2007. This estimate has increased to about 25,000 in 2011 (4).

Diabetes mellitus is classified in to four on the basis of etiology and clinical presentation of the disorder: type 1-diabetes, type-2 diabetes, gestational diabetes and other specific types (1, 5).

Type-2 diabetes constitutes about 85 to 95% of all diabetes in high-income countries and accounts for an even higher percentage in low- and middle-income countries. Type 2 diabetes is now a common and serious global health problem, which, for most countries, has evolved in association with rapid cultural and social changes, ageing populations, increasing urbanization, dietary changes, reduced physical activity and other unhealthy lifestyle and behavioral patterns (6).

WHO found that diabetes decreases both quality and expectancy of life and imposes large economic burdens on individuals and on national health care system. Direct medical costs include resources used to the treatment of disease and the indirect

are those which are related to loss of productivity caused by morbidity, disability and premature mortality (7).

Good diabetes management is a balance between healthy eating, exercise and medication (8). Patient education and self-care practices are most important aspects of disease management that can help people with diabetes lead normal lives. Many people with type 2 diabetes can be able to control their blood glucose by following a healthy meal planning and exercise regimen, losing excess body weight, and taking medication. Self-management education or training is a main step in improving health outcomes and quality of life. It focuses on self-care behaviors, such as healthy eating, being active, and monitoring blood sugar. It is a collaborative process in which diabetes educators can help people with or at risk for diabetes gain the knowledge and problem-solving and coping skills needed to successfully self-manage the disease and its related conditions (8).

Dietary management which is considered to be one of the cornerstones of diabetes care and is based on the principle of healthy eating is in the context of social, cultural and psychological influences on food choices. Along with increasing levels of physical activity, it should be the first step in the management of patients with type 2 diabetes (9).

Maintaining a healthy diet is important for everyone, but it is especially important for people with diabetes. Whether one is being treated with insulin or tablets, the patient needs to follow a sensible eating plan. The so-called "diabetic diet" is not in fact a diet, but rather a healthy eating plan which can, and should be followed by the whole family (10) . A type II diabetes diet and following the right meal plan can make all the changes to a person struggling to keep their blood sugar normal. But, what is the right meal plan? How much of which food group should one eat? Most diabetic patients have problem identifying quality and quantity of food that they have to eat in order to help them lower their blood glucose level (9).

1.2 Literature Review

1.2.1 Dietary practice of type II diabetic patients

Dietary practice refers to patients' choices in food consumption based on diabetes nutrition education that gives emphasis on intake of lower fat, higher fiber, lower sodium and food that can promote, such as omega-3 fatty acid rich fish, soy products, fresh and frozen fruits and vegetable. Interventions to achieve good glycemic control in diabetic patients are cost effective in reducing morbidity and mortality; however, glycemic control is seen to be poor in both developed and developing countries.

Glycemic control is achieved by undertaking and sustaining a complex set of activities of self-care behaviors, including four main domains: undertaking appropriate dietary practice, taking medications, regular exercising and self-monitoring of blood glucose levels. If dietary practice and other self-care behaviors are improved, clinical and metabolic outcomes improve significantly (7).

A study done on the assessment of dietary practices and associated factors among patients with type 2 diabetes at the Diabetic Centre of King Abdul-Aziz University Hospital at King Saudi University in Riyadh, Kingdom of Saudi Arabia found out that the dietary practices of diabetic patients in KSA are inadequate The main socio-demographic and diabetes-related factors affecting dietary practice identified were education level, family diabetes history, duration of diabetes and occupation (11).

Findings from study in self-care practice and glycemic control amongst adults with diabetes at Jimma University Specialized Hospital in south-west Ethiopia, indicated among 343 diabetic patients only 190 patients (55.6%) had regular meals including lunch time (12). which shows poor self care practice.

2.2.2 Factors influencing dietary practice among type II diabetic patients

A study done on the factors influencing dietary practice among type II diabetics who were selected from the diabetic clinics of primary health care centers in Bahrain, indicated that, dietary practice was based on patients' choices in food consumption based on diabetes nutrition education that emphasizes on intake of lower fat, higher fiber, lower sodium and food that have health-promoting properties, such as omega-3 fatty acid rich fish, soy products, fresh ,frozen fruits or vegetable (7).

Dietary practice assessment in these patients was performed through evaluation of the usual eating pattern i.e. type and amount of food and beverages consumed, times of eating including meal and snack distribution throughout the day, current energy, macronutrient and micronutrient intake. This study finally indicated that the lack of proper professional dietary assessment, follow-up and advice by the health care providers were the main influencers on dietary practice of type II diabetic patients and the barriers to diet regimen were also identified as being busy, not liking it, forgetting how to do it, not understanding what to do, the food costs extra money, and being sad/depressed (7).

A cross sectional study done in diabetes self-care practices and associated factors among type II diabetic patients in Tikur Anbessa Specialized Hospital Addis Ababa, Ethiopia indicated that majority of patients had poor adherence to self-care practices especially in self-monitoring of blood glucose and diet management practices. The majority (79%) of the study participants were not adhered to recommended diet management which means, they apply the recommended diet management practices for about less than 1-2 times per week, and only (21%) of study participants were identified as adhered by following the recommended diet management practices at least 3-4 times a week. Variables like education level, monthly income, presence of diabetic complication and marital status were showed to be significantly associated with adherence to diet management practices. Respondents with high level of education and who are married were five and ten times more likely to be work in diet management practices when compared with their

counter parts and respondents with high monthly income and without diabetes complication, on the other hand were observed to be four and two times more adherent when compared to their counterparts respectively (13).

A cross sectional study done to determine the level of perceived barriers to prudent diet among 253 adult Iranians with type II diabetes, indicated that thinking about the cost of foods was the most frequent barrier in Iranian with diabetes. Duration of diabetes was also identified to be a significant predictor of barrier to dietary self-care. The rate of barriers to dietary self-care (BDSC) has increased as duration of diabetes increased (14).

A cross-sectional study carried out on 312 elderly diabetic patients attending the outpatient clinics of Benghazi center for Diabetes and Endocrine glands showed that being with people who are eating and drinking things was the most frequent barrier perceived by both male and female elderly diabetic patients. The next barrier was lack of time for food preparation for males and “won’t matter if don’t follow diet” for females. Age, gender, family size, gender ,years with diabetes, learning barriers, food related problems, satisfaction with prescribed diet, and Medical Nutrition Therapy(MNT) scores was significantly related to the level of diet self-care barriers (15).

A descriptive cross-sectional study conducted on Type II diabetic patients attending Diabetic/Non Communicable Diseases (NCD) clinic in health centers in five health regions of Bahrain showed that the majority of the subjects were 50 years or older with low educational level. Patients had good family support and high motivation to see a dietician and to follow diet regimen whenever available. For the majority the main sources of dietary advices were doctors and only 16.3% received advice from the diabetic nurses. Most of the patients had never been referred neither to a dietician nor to a health educator (77.4%, 82.2% respectively). Although, patients had mainly average and good dietary practice; the two main reported barriers to dietary regimen as reported; it takes efforts (47%) or being busy (45.8%). The lack of

proper professional dietary assessment, follow up and advices by the health care providers are the main influence on dietary practice of type 2 diabetic patients in Bahrain (7).

A descriptive–analytical study performed on 480 diabetic patients in Tehran University of Medical Sciences (TUMS) in Tehran for a period of nine months in 2012 showed that family influence on dietary practice was highlighted as the most important domain in the dietary habits instrument. Study results also revealed that there was a significant association between the patients socioeconomic status and some variables related to dietary habits such as dietary self-management, planned healthy lifestyle attending diabetes educational programs and planned healthy lifestyle. The important role of family on dietary habits among type II diabetic patients highlighted the role of perceived social support from the family. The results of the socio-demographic variables stressed the necessity of specific intervention programs accordingly (16).

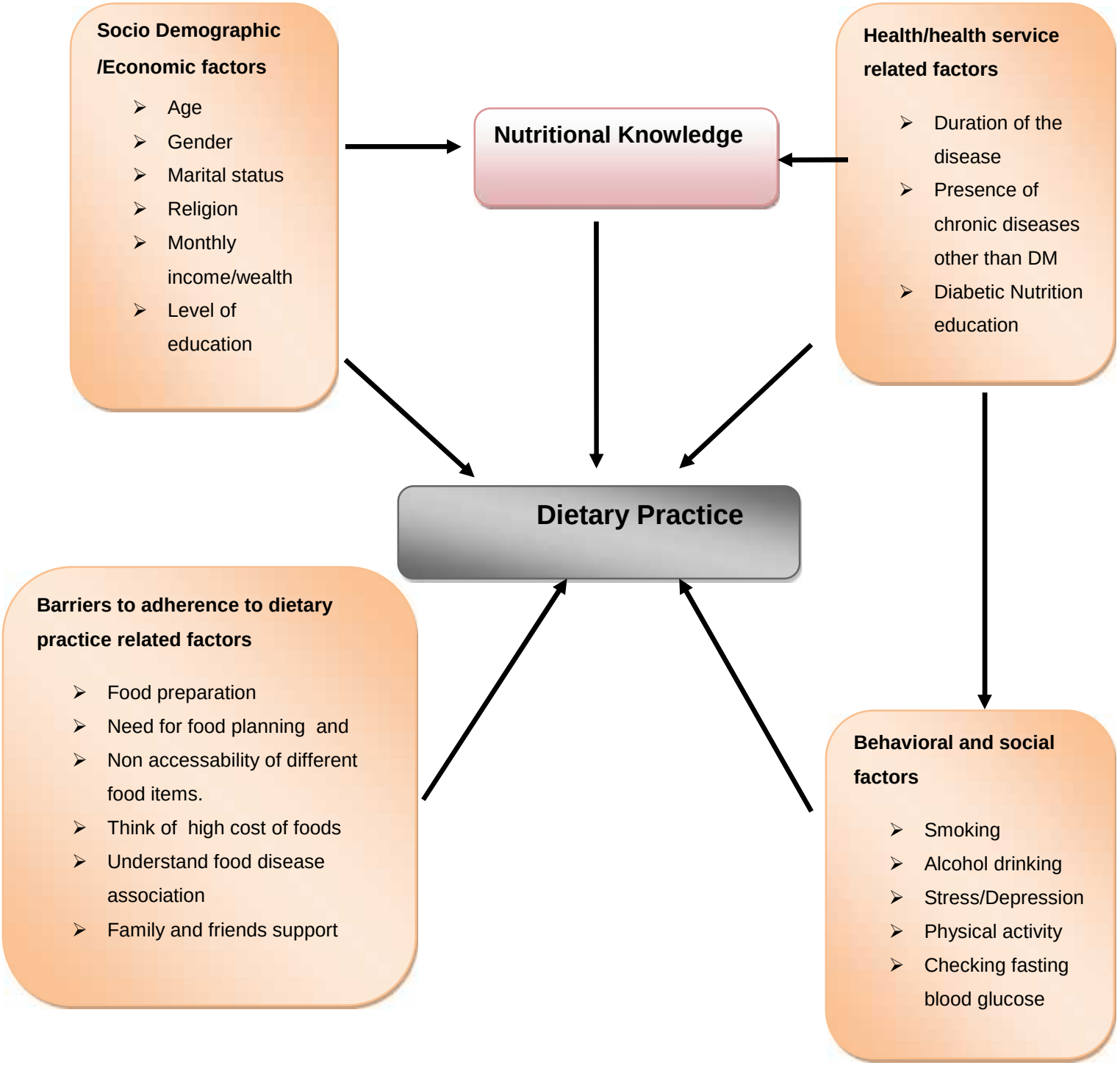

Figure 1: Conceptual framework of dietary practice and associated factors among type 2 diabetic patients.

1.3 Justification

Medical nutrition therapy (MNT) is important in preventing diabetes, managing existing diabetes, and delaying complications.

Proper diet is crucial at any stage of management of diabetes including those on medication.

The goals of MNT together with medication are to attain and maintain blood glucose, blood pressure and lipid profile as close to normal as safely as possible. These goals can be achieved through healthy food choices. Dietary counseling should be individualized according to nutritional needs, severity of disease, cultural preferences and willingness to change (17).

Though diet modification is the base for diabetes management, we observe very poor dietary practice among these patients.

In Ethiopia, incomplete routine health information and lack of data on the dietary practice of diabetic patients underestimates the burden of diabetes.

To the best of our knowledge, in Ethiopia diet modification for the patient is not individual based, there is no dietary guide developed that can assist the diabetics to freely eat what they want and what is necessary at any time, we see this diabetic people suffering from choosing food items when they feel like eating .They don't even know how much they have to eat. Their care givers also suffer from what food to prepare and how to do it. For all these reasons we need to assess their dietary practice and associated factors that can affect them not to follow their dietary modifications.

The results of this study will possibly serve as a base line data for the nutrition educators, dieticians, policy makers to consider the factors that decrease dietary practice of type 2 diabetic patients to diet modifications.

2. OBJECTIVE

2.1 General objective

- To assess the dietary practices and identify associated factors among type II diabetic patients in Yekatit 12 Medical College Hospital, Addis Ababa, Ethiopia.

2.2 Specific objectives

- To assess the dietary practice of type II diabetic patients in Yekatit 12 Medical College Hospital, Addis Ababa, Ethiopia.

- To identify factors affecting dietary practice of type II diabetic patients in Yekatit 12 Medical College Hospital, Addis Ababa, Ethiopia.

3. METHODOLOGY

3.1. Study design

- Institution based cross-sectional quantitative study design was used.

3.2. Study area and period

The study area, Yekatit 12 Medical College Hospital is found in Woreda 6, Arada Sub City, Addis Ababa City, Ethiopia. The hospital has been inaugurated by the title “Bete sayida be Teferi Mekonnen” in 1915. According to the 2007 census report by Central Statistical Agency of Ethiopia (CSA), the dominant ethnic group of Addis Ababa City is Amhara, and religion is Orthodox The other dominant ethnic groups are: Oromo, Gurage, Wolayita and Tigray (17). This study was conducted from March –April 2014.

3.3. Source Population

All Type II diabetic patients in Yekatit 12 Medical College Hospital.

3.4. Study Population

All type II diabetic patients included in the study who visit the out patients department during the study period.

3.5. Inclusion and exclusion criteria

Inclusion criteria

All adult type II diabetic patients 18 years and older were included.

Exclusion criteria

- Those who were critically ill and were unable to participate in the interview.
- Those who were recently diagnosed (less than one year of diagnosis).

3.6. Sample size and sampling procedure:

3.6.1 Sample size determination

Sample size was calculated by using simple population proportion formula and using the following assumptions.

Since there was no study done on the dietary practice of type II diabetic patients, we took p value 50%, with 5% marginal error and 95%CI and a non response rate of 10%.

Based on this assumption, the actual sample size for the study was determined by using the following formula for single population proportion.

$$n = \frac{(Z\,{}^{a}/_{2})^{2} p(1-p)}{W^{2}}$$

Where

n = total sample size

$Z\alpha/_2$ = the standard normal deviate set at 1.96, which corresponds with the 95% confidence interval.

p=prevalence of poor dietary practice of type 2 diabetic patients =50%=0.5

ω = margin of error.

Taking the required precision to be 5% and 10% for non response rate and substituting in to the above formula, we will get

$$n = \frac{(1.96)^{2} x 0.5 x 0.5}{(0.05)^{2}}$$

- n = 384

By taking 10% for non response rate = 384+38.4.

So the final sample size of study subjects was 422.

3.6.2. Sampling Procedure

Patients with good control come every 3 months, those with poor control or serious complication more often and a patient is included only once.

All eligible patients were included in the study.

Data collection was conducted daily and one study subject was recruited only once.

3.7. Study variables

3.7.1. Dependent variables

- Dietary practice

3.7.2. Independent variables

- **Socio Demographic/economic data**
  - Age
  - Gender
  - Marital status
  - Religion
  - Monthly income/wealth
  - Level of education
  - Ethnicity

- **Behavioural and social factors**
  - Smoking
  - Alcohol drinking
  - Stress/Depression
  - Social /family support
  - Physical activity
  - Checking fasting blood glucose(FBG) daily

❖ **Health/health service related factors**

- Duration of the disease
- Presence of chronic diseases other than DM
- Diabetic nutrition education

❖ **Barriers adherence to dietary practice related factors**

- Food preparation
- Understand food disease association
- Difficulty to choose foods
- Family and friends support
- Need for food planning
- Non availability of different food items.
- Think of cost of foods

❖ **Nutritional knowledge**

- Number of regular meals per day
- Number of snacks per day
- Fats to cut down
- Foods to cut down a lot
- Healthy oil

3.8. Operational definitions

The dietary practice (outcome variable) containing 11 components were computed by taking the mean value to classify the respondents follow good and poor dietary practice. Value 0 was given for good practice and 1 for poor.

Good dietary practice- those who replied below the mean value

Poor dietary practice- those who replied above the mean value

Regular meal- meals eaten at regular times (Breakfast, Lunch, Dinner)

Snack- Meals eaten between regular meal times

3.9. Data collection tools and procedures

The assessment of dietary practice of the patients is based on the general advice for diabetic diet plan. Developed from south African diabetes association(SADA), which is also used by the Ethiopian diabetes association (EDA) (10) .

Closed – ended, structured questionnaire was developed by reading different literatures (18) (19) (20, 21).The questionnaire was initially prepared in English and then translated in to Amharic by the principal investigator and then translated back to English. It was the Amharic version of the questionnaire that was used for data collection.

Accordingly, respondents were allowed to choose correct answers by indicating whether a given statement is Yes or No. Finally, the dietary practice of respondents was scored and computed for dietary practice variables. One point was allocated to a wrong response for all questions of dietary practice according to diabetic food pyramid and the literatures.

The questionnaire was pretested in 5% of the sample size in private clinics. It was conducted one week prior to the actual data collection period for consistency of responses and then corrective action was taken.

Four data collectors and 1 supervisor having educational level of B.Sc were recruited and trained.

Data collectors were assigned by the investigator on the days the patients came to the hospital for their medication and then data was collected using interview based questionnaire.

Anthropometry:

Weight measurement:

Weight of the study participants was measured by a standard weighing scale which is used for weight measurement in the department. There was calibration after every measurement. The subjects were told to remove shoes and any heavy cloth that was worn during the measurement. The weight was taken when the subject calms down. The measurement was read to the nearest 0.1kg.

Height measurement:

Height was measured using the standard non stretchable tape. The subjects were in bare foot, stand with heels together, arms to the side, legs straight, shoulders relaxed. The measurement was read to the nearest 0.1 cm.

Fasting blood glucose measurement:

Fasting blood glucose (FBG) was measured by using gluco-meter. When the patients came to the hospital they had blood tests and data collectors take that from the result.

3.10. Data quality management

To ensure the quality of data, training was given to data collectors and the supervisor and administration of pre-test among 5% of the total sample size to assess its clarity, length, completeness and consistency. The questionnaire was also translated in to Amharic to facilitate understanding of the respondents.

The supervisor carried out regular supervision, spot-checking and reviewing the completed questionnaire to maintain the data quality.

The overall activity was coordinated by the principal investigator.

3.11. Data management and analysis

Data was checked for completeness and cleaned manually. It was then entered using EpiInfo version 3.5.3 then exported to SPSS version 20 for further analysis.

Bivariate analysis was used for each variable to check the association between independent variables and dietary practice. Logistic regression was applied to test the presence of association.

The independent variables (covariates) were selected into the model based on prior evidence in the literature, conceptual framework and their effect in current analysis. Independent variables with a p-value of 0.20 and less, during the bivariate test, were selected to include the marginal confounder.

Values are then considered statistically significant when p-value is less than 0.05 at 95 % CI.

Frequency tables, texts, pie charts and graphs are used for data presentation. Both Bivariate and multivariate analysis is applied to determine factors affecting dietary practice.

3.12. Ethical Considerations

The ethical approval and clearances were obtained from Ethical Review Board of Institute of Public Health, University of Gondar. Permission letter were given from Yekatit 12 hospital CEO. Prior to data collection, the objective of the study was discussed with the concerned officials of the hospital and written consent was obtained. Informed verbal consent was obtained from each study participant after the purpose and significance of the study was explained to him or her by the data collector. Great emphasis was given for the confidentiality and privacy of respondents throughout the study period. The participants were also informed that

the information obtained from them was not disclosed to the third person/body. Their participation was voluntary. Data was collected after obtaining informed verbal consent from each study participant.

4. RESULTS

4.1 Socio –demographic and economic characteristics

A total of 403 Type 2 diabetic patients participated in the current study with a response rate of 95.5 %. Half of the respondents were males. The mean (±SD) age of respondents was 55.19 (±9.6) years with minimum age of 30 and maximum age of 77 years. Above two third (71.0%) of the participants were Orthodox Christians followed by Muslim (15.1%). More than half (55.1%) of the respondents were married. And two hundred twenty eight (56.6%) of the study population had formal education. On the bases of ethnicity Amhara accounted for (47.4%) followed by Oromo (24.3%), (Table 1).

Table 1:Socio demographic and economic characteristics of type 2 diabetic patients at Yekatit 12 Medical College Hospital , Addis Ababa, Ethiopia, 2014(n=403).

Variable	Frequency	Percent (%)
Sex		
Male	205	50.9
Female	198	49.1
Age		
30-60	282	70
61-70	104	25.8
≥71	17	4.2
Marital status		
Single	49	12.1
Married	222	55.1
Divorced/Separated/Widowed	132	32.8
Religion		
Orthodox Christian	286	71
Muslim	61	15.1
Protestant	6	1.5
Others	50	12.4
Educational status		
Non formal education	175	43.4
Formal education	228	56.6
Wealth		
Poor	117	29
Medium	154	38.2
Rich	132	32.8
Ethnicity		
Amhara	191	47.4
Oromo	98	24.3
Guragae	57	14.1
Tigray	44	10.9
Others	13	3.3

Others***—Catholic, The 7 days Adventist, Jehovah witness

Others---- Wolayita, Hadere

4.2. Dietary Practice

The overall proportion of poor dietary practice among the respondents was 51.4% 95%CI: (46.4, 56.2) (Figure 2).

The proportion with poor dietary practice was 51.23 among, Males 95% CI (44.3, 58.0) and 51.52 95% CI: (44.5, 58.5) among female respondents.

The proportion with poor dietary practice was 47.52% 95%CI (41.6 ,53.7) among age group 30-60 , 57.69% 95%CI (48.1,67.2) among age group 61-70 and 76.47% 95%CI (55.6,97.3) among those who were above 71 years old.

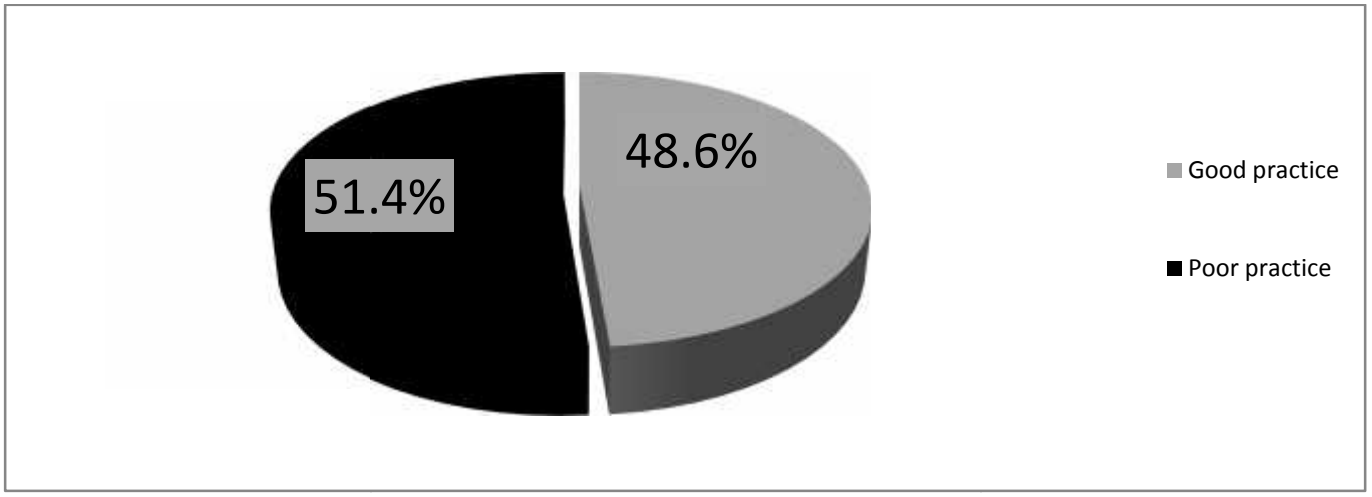

Figure 2: Dietary practice of respondents with respect to the eleven variables measuring failure in practice among type II diabetic patients in Yekatit 12 Medical College Hospital, Addis Ababa, Ethiopia.

One hundred seventy (42.2%) of the respondents reported that they stopped following their dietary plan when they feel their DM is under control. Two hundred twenty one (54.8%) of the respondents were hassled to follow the diabetic dietary regimen. Two hundred ninety nine (74.2%) respondents reported that they feel dietary deprivation. One hundred fifty seven (39.0%) responded that they usually forget to include fruits and one hundred thirty two (32.8%) responded that they forget to include vegetables, (Table 2).

Table 2: Dietary practice of respondents with respect to the eleven variables measuring failure in practice among type II diabetic patients in Yekatit 12 Medical College Hospital, Addis Ababa, Ethiopia, n=403.

Variable	Frequency	Percent (%)
Forgetting to plan the meals you eat ahead?		
Yes	168	41.7
No	235	58.3
Did you miss your dietary plan yesterday?		
Yes	133	33
No	270	67
Over the past two weeks, were there any days when you did not take your dietary plan properly?		
Yes	182	45.2
No	221	54.8
Do you sometimes forget to comply your dietary plan with everyday life?		
Yes	151	37.5
No	252	62.5
When you feel like your DM is under control, do you sometimes stop taking your dietary plan		
Yes	170	42.2
No	233	57.8
Do you ever feel hassled about sticking to your dietary plan?		
Yes	221	54.8
No	182	45.2
Did you have feelings of dietary deprivation?		
Yes	299	74.2
No	104	25.8
Are you rigid, instead of flexible eating to control your DM?		
Yes	159	39.5
No	244	60.5
Forgetting to include fruits in your food daily?		
Yes	157	39
No	246	61
Do you forget to include vegetables in your food daily?		
Yes	132	32.8
No	271	67.2
Do you forget to cut down butter and fat intake in your food?		
Yes	74	18.4
No	329	81.6

4.3. Health status and available health services

Concerning health status and available health services, 65.8% of the respondents had ≥ 5 years duration of diabetic disease. Half of the respondents (49.9%) had other chronic diseases. About 16.2% of the respondents reported they don't get diabetes nutrition education in hospitals, 68.0% reported they don't get diabetic nutrition journals or pamphlets and 66.5% reported they don't get visual diabetic nutrition education. (Table 3)

Table 3: Health status and available health services for type II diabetic patients in Yekatit 12 Medical College Hospital , Addis Ababa, Ethiopia, n=403.

Variable	Frequency	Percent (%)
Duration of the disease		
<5Years	138	34.2
>= 5Years	265	65.8
Chronic disease other than DM		
Yes	201	49.9
No	202	50.1
Nutrition education in hospitals		
Yes	337	83.8
No	65	16.2
Nutrition journals		
Yes	129	32
No	274	68
Visual nutrition education		
Yes	135	33.5
No	268	66.5

4.4. Behavioral and social conditions of respondents

Concerning behavioral and social conditions, 73% of the respondents don't check fasting blood glucose (FBG) daily. And 51.9% of the respondents take holidays and celebrations as free days to eat. About 45.9% of the respondents did not make food choice (food menu) when they ate out of home, (Figure 3).

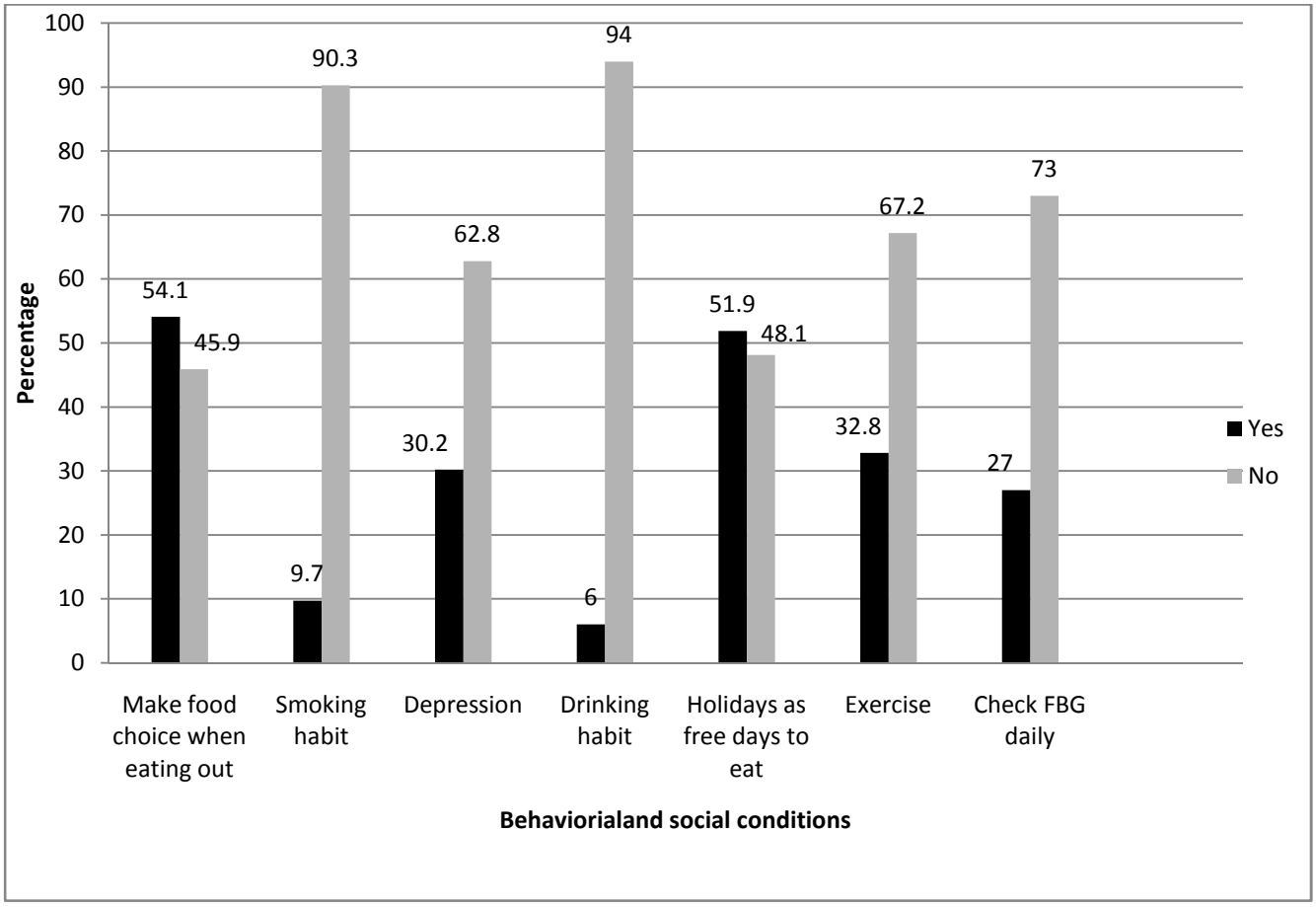

Figure 3: Behavioral and social conditions of participants of type II diabetic patients in Yekatit 12 Medical College Hospital, Addis Ababa, Ethiopia, n=403.

4.5. Barriers to adherence to diet regimen as reported by the respondents.

Concerning the barriers to adherence 16.6% of the respondents replied foods are not prepared based on their disease, 54.3% of respondents have difficulty choosing foods, 11.9% of the respondents replied that they did not get family and friends support, 24.1% of the respondents replied that they did not know that DM could be controlled by food planning, 14.4% of the respondents replied for non availability of fruits and vegetables and 77.2% of respondents replied thinking about the high cost of foods as a barrier to adhere and follow the diet regimen, (figure 4).

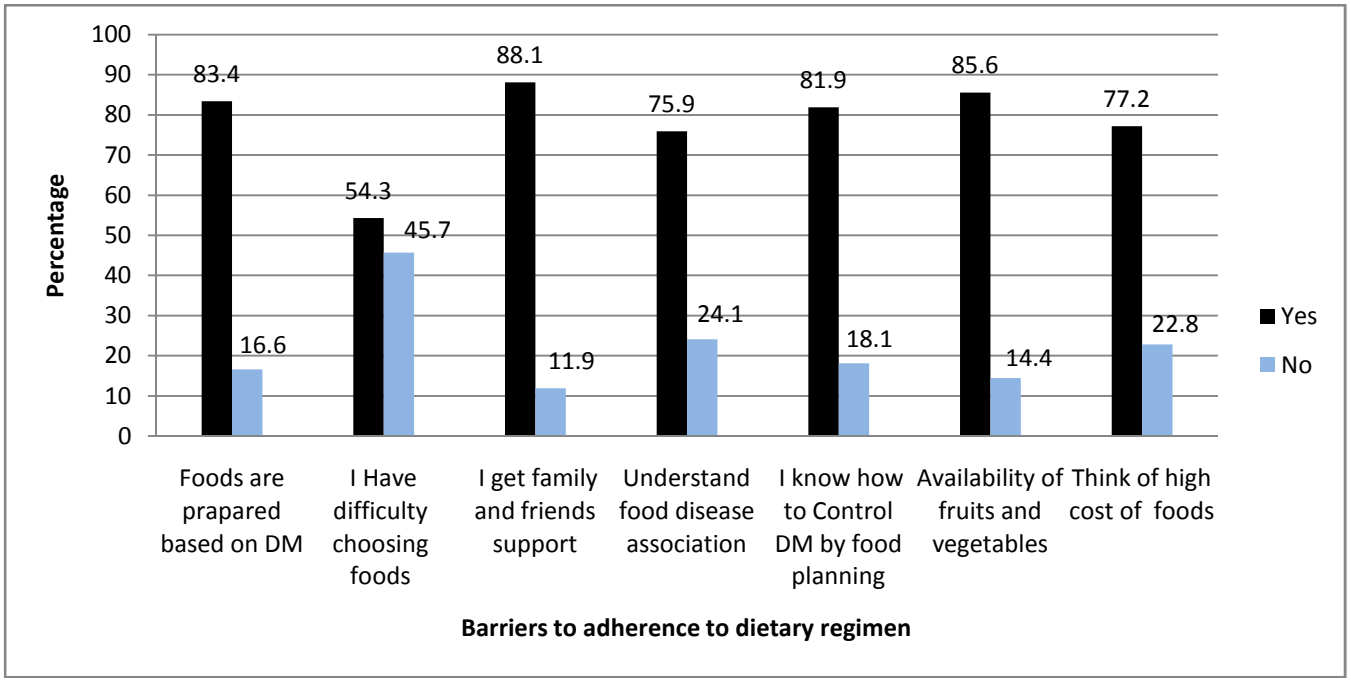

Figure 4: Barriers to adherence to the dietary regimen of participants of type II diabetic patients in Yekatit 12 Medical College Hospital, AA, Ethiopia, 2014.

4.6. Nutritional knowledge and feeding practice.

Concerning the nutritional knowledge most respondents 236 (58.6%) replied that the number of fruits and vegetables to eat only once in a day and 100 (24.8%) 2-4 times a day. Concerning the number of snacks per day a diabetic patient should eat, 66.7% said only once is enough (Table 4).

Table 4: Nutritional knowledge of type II diabetic patients in Yekatit 12 Medical College Hospital, Addis Ababa, Ethiopia, n=403.

Variable	Frequency	Percent (%)
Number of fruits and vegetables eaten per day		
Once	236	58.6
2-4 times	100	24.8
Don't know	67	16.6
Oils to cut down		
Liquid oils	30	7.5
Fats and butter	335	83.1
Don't know	38	9.4
Foods to cut down a lot		
Fruits and vegetables	6	1.5
Carbohydrates	94	23.3
Milk and milk products	22	5.5
Sweets	262	65.0
Don't know	19	4.7
Healthy oil		
Butter	64	15.9
Olive oil	258	64
Don't know	81	20.1
Number of regular meals per day		
Once	17	4.2
Two times	32	7.9
Three times	334	82.9
Don't know	20	5
Number of snacks per day		
Once	269	66.8
Two times	84	20.8
Three times	32	7.9
Don't know	18	4.5

4.7. Nutritional status and FBG Measurements

About 46.4 % of study subjects were overweight and obese. More than half of the respondents (58.8%) had FBG level ≥ 126mg/dl (Table4).

Table 5: Nutritional Status and FBG level of type II diabetic patients in Yekatit 12 medical college hospital n=403

Variable	Frequency	Percent (%)
Nutritional Status		
Underweight	8	2
Normal	208	51.6
Overweight and Obese	187	46.4
FBG Level		
<126mg/dl	166	41.8
≥126mg/dl	237	58.8

4.8. Factors affecting the dietary practice of type II diabetic patients

In bivariate logistic regression analysis, each explanatory variable with outcome variable (Poor dietary practice) was assessed for its association.

Age, educational status, wealth, not getting diabetic nutrition education in hospitals, non availability of diabetic nutrition education journals, not getting visual diabetic nutrition education, not making food choice when eating out, having depression, taking holidays and celebrations as free days to eat, difficulty to choose foods, foods not prepared based on DM, not getting family and friends support, not understanding food disease association, not knowing to control DM by food planning, non availability of fruits and vegetables, thinking about the high cost of foods, poor nutritional knowledge of the respondents, nutritional status and fasting blood glucose level were identified to be associated with poor dietary practice of the respondents. But not getting diabetic nutrition education in hospitals, being depressed, having difficulty to choose foods, non availability of fruits and vegetables and thinking about the high cost of foods were remained significantly associated with poor dietary practice in the multivariate logistic regression analysis.

Patients who did not get diabetic nutrition education were 4.47 times more likely to have poor dietary practice than those who get [AOR=4.47, 95%CI: (1.92, 10.40)]. Patients who had depression/ stress were 2.15 times more likely to follow poor dietary practice than those who do not have depression [AOR= 2.15, 95% CI: (1.14, 4.02)]. Patients who have difficulty to choose foods were 9.66 times more likely to have a poor practice than patients who did not have difficulty to choose foods [AOR= 9.66, 95%CI: (5.12, 18.24)]. Patients who had less availability to fruits and vegetables were 2.79 times more likely to have poor dietary practice than those who did not [AOR= 2.79, 95%CI: (1.03, 7.54)]. Likewise patients who think of cost of foods were 2.36 times more likely to have poor dietary practice than those who do not think about cost of foods [AOR= 2.36,95%CI: (1.18, 4.70)], (Table 6).

In this study both bivariate and multivariate analysis showed that there was no statistically significant association between poor dietary practice and religion, marital status, occupation, smoking habit, drinking habit and duration of disease.

Table 6: BiVariate and Multiple Logistic Regression Analysis of factors affecting dietary practice of type 2 diabetic patients in Yekatit 12 Medical College Hospital, AA, Ethiopia, 2014.

Variables	Dietary practice		COR(95% CI)	AOR(95% CI)
	Poor	Good		
Age				
30-60	48	148	1	
≥61	73	134	1.68(1.09,2.58)	
Wealth				
Poor	72	45	1.80(1.09,3.00)	
Medium	73	81	1.01(0.64,1.62)	
Rich	62	70	1	
Get nutrition education in Hospitals				
No	49	17	3.08(1.76, 5.78)	**4.47 (1.92, 10.40)**
Yes	158	179	1	1
Depression				
Yes	100	50	2.72(1.79,4.16)	**2.15(1.14,4.02)**
No	107	146	1	1
Difficulty to choose foods				
Yes	163	56	9.26(5.87,14.60)	**9.66(5.12,18.24)**
No	44	140	1	1
Family and friends support				
No	37	11	3.66(1.80,7.40)	
Yes	170	185	1	
Availability of fruits and vegetables				
No	48	110	5.61(2.75,11.46)	**2.79(1.03,7.54)**
Yes	159	186	1	1
Think of high cost of foods				
Yes	175	136	2.41(1.48,3.92)	**2.35(1.18,4.70)**
No	32	60	1	1
Nutritional status(BMI)				
Underweight	5	3	1.14(0.26,4.92)	
Normal	91	117	0.53(0.36, 0.80)	
Overweight and obese	111	76	1	
Fasting blood glucose level				
<126	55	111	1	
≥126	152	85	3.60(2.38,5.48)	

Note: 1.00=Reference

5. DISCUSSION

In this institution based cross-sectional study, we were able to measure the proportion of poor dietary practice among type II DM patients. We revealed that a large proportion of type DM 2 had poor dietary practice. Not getting nutrition education in hospitals, having depression, difficulty to choose foods, non availability of fruits and vegetables and thinking about high cost of foods were the variables identified for having significant association with poor dietary practice.

The overall occurrence of poor dietary practice among type II diabetic patients in Yekatit 12 Medical College Hospital , was found to be 51.4%95 % CI: (46.4, 56.2) . A study done on the assessment of dietary practice among diabetic patients in the United Arab Emirates indicated inadequate dietary practice among diabetic patients (22). Another study done on dietary practices among patients with type II diabetes in Riyadh, Saudi Arabia has indicated that there was an inadequate dietary practice(11). Another study done on compliance and control of diabetes in a family practice setting in Saudi Arabia has indicated that there was 60% poor diet compliance, which is higher than the present study. The disparity could be explained by the variation in the setting of study area, difference in socioeconomic status as well as difference in the types of foods available in these two countries (23).

Not getting diabetic nutrition education in hospitals was one of the main factor that was identified to have association with the poor dietary practice of the patients. This result is in line with a single-blind randomized study done in Malaysians , which showed the enhancement of self-care practices and improvement of glycemic control for poorly controlled diabetes by using a brief structured education program (24). Similar report in South Africa has identified the need for nutrition education related to diabetes care as barrier to optimal diabetes management (25). This may be due to the reason those who get nutrition education follow the advices from clinicians and will have better knowledge and understanding about food disease association, food guides and prescriptions than those who don't get nutrition education.

Depression was another factor identified for poor dietary practice. This result is in agreement with a report on diabetes and depression: Global perspectives which showed coexisting depression in people with diabetes is associated with decreased adherence to treatment, poor metabolic control, decreased quality of life and increased risk of death (26). Accordingly those who were depressed for most of the times were twice highly at risk of forgetting and not giving value for food planning and will therefore consume whatever they got is edible.

Difficulty to choose foods was also identified as a factor for poor dietary practice. This may be due to cultural and personal food choice, economical reason and the unavailability of food guide prepared for diabetic patients in the country's context.

Non availability of fruits and vegetables was another factor affecting dietary practice of diabetic patients. This result is in line with a report done in creating healthy food and eating environments: Policy and environmental approaches (27). This may be due to the fact that those who do not have access to fruits and vegetables will suffer difficulty to take the recommended type and amount of fruits and vegetables, again which leads to poor dietary practice.

Respondents which think about high cost of foods were 2.35 times more likely to have poor dietary practice than those who do not think about high cost of foods. This result is in agreement with study done in Iranian adults with diabetes which showed thinking about cost of foods as the most frequent barrier to the dietary practice among type II diabetic patients (14). This commonly corresponds to the economical background. In clear terms, those who have economical constraints will not have enough money to buy different types of foods to fulfill their daily requirements .Therefore, they will be forced to consume only some specific foods without choice and get exposed to poor self dietary management.

Limitations of the study

- The study shares all limitations of cross sectional study like failing to show cause and effect relationship between the outcome variable and independent variables.

Strengths of the study

- The study will be the base line for future studies since there is limited evidence on the dietary practice of diabetic patients in Ethiopia.

6. CONCLUSION

The prevalence of poor dietary practice is found to be very high and it is major public health problem.

Not getting diabetic nutrition education in hospitals, being depressed, difficulty of choosing relevant foods for their specific health problem, non-availability of fruits and vegetables and thinking the high cost of foods were important factors affecting dietary practice of type II diabetic patients.

7. RECOMMENDATIONS

Based on the level of dietary practice and associated factors identified in this study the following recommendations are forwarded.

To policy makers and to the Ministry of Health

- Policy makers be able to give high concern to diabetic patients' self-care practice education and be able to help them by preparing standard manuals/materials.
- An appropriate, strong and effective patient and family education and motivation, preparation of understandable nutrition education materials, food guide and calorie count by plate size, personalized patient and family supervision program should be planned for diabetic patients to promote good practice and improve their quality of life.

To the Ministry of Agriculture

- The agricultural sector is able to work to increase the production of fruits and vegetables and able to educate the society about home gardening so that the diabetic patients will have access to different fruits and vegetables at any time they need.

To Diabetic patients

- Diabetic patients are able to involve in self management training and education programs with dietary counselling sessions that can enhance self care practice to dietary regimen.

To researchers

- Longitudinal studies recommended to measure overall dietary self care practice and needed to assess the relationship between those variables over time.

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9. ANNEX

Annex I: Information sheet

Title of the research project: Dietary practice and associated factors among type-II diabetic patients in Yekatit 12 Medical College Hospital, Addis Ababa, Ethiopia.

Name of principal investigator: Amelmal Worku

Name of Advisors: Dr Solomon Mekonnen

: Mr Molla Mesele (Bsc, MSc)

Name of the organization: University of Gondar, College of Medicine and Health Sciences, institute of Public health.

Name of the sponsor: Self sponsor

Introduction

This information sheet and consent form is prepared by the investigator whose main aim is to assess the dietary practices and factors affecting dietary practice among type II diabetic patients in Yekatit 12 Medical College Hospital from March to April. This information sheet and consent form is prepared with the main aim of explaining the research project and to get permission to undertake the research.

Purpose

The purpose of the study is to assess the level of dietary practice and associated factors among type-II diabetic patients. This may contribute some opportunity to nutrition educators ,dieteticians and policy makers to consider the factors while advising and policy making in lifestyle modification of type 2 diabetic patients so that the patients will be able to stick the advises given.

Procedures:

In order to collect our data, we invite you to take part in our project. If you are willing to participate in this study, you need to understand what the investigators mean about the study and sign the consent form. We would like to request you to participate in the study; this will take approximately 30 minutes of your time. You will be asked a set of questions and I would like you to answer questions openly and honestly.

Risk or Injury/discomfort

By participating in this research no foreseeable risk of physical injury .If you feel some discomfort especially in physical measurements like waist circumference, weight height and also if you feel you are wasting your time, there is very less risk in participating this study.

Benefits/compensation

There are direct benefits for you to participate in the study because if you did not have enough information in lifestyle changes specially adherence to diet modifications lower the risk of life complications in diabetic patients in the previous time you will have a better knowledge at the end of this study.

Incentives/payments for participating

You will not be provided any incentives or payment to take part in this project.

Privacy, anonymity and confidentiality

The questionnaire does not bear the name of individual answering the question and the responses will remain anonymous. The information obtained will be kept in confidence and findings will be reported as grouped data.

Right to refusal or withdraw

Participation in the study is voluntary. You can withdraw any time during the course of the interview without any penalty. If you have any question during or after the interview feel free to ask for clarity and contact me at the given address.-

Person to contact: If you want to know more information you can contact the committee through the address of the principal investigator and/or or the Advisors.

1. Principal investigator: Amelmal Worku
   Tel+251-911364654 email amelmalworku@yahoo.com

Advisors:

1. Dr. Solomon Mekonnen, University of Gondar ,college of medicine and health sciences ,institute of public health
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Annex II: Consent form

University of Gondar

Institute of public health

Department of human nutrition

My name is _____, and I am working in _____. This is an interview based questionnaire to collect information for as survey to learn more about dietary practice and associated factors among type II diabetic patients from University of Gondar student, Ms Amelmal Worku Mengistu and I am data collector assigned to collect the information based on the following questions. You are randomly selected for this study. We would appreciate your participation.

I would like to ask you some questions about your dietary practice and associated factors. The information you provide will be kept strictly confidential and will be used to improve programs in nutrition education. Taking part in this study survey is voluntary, that means that you do not have to participate if you don't want to. There is no risk in taking part in this project It is possible that you may feel uncomfortable answering some of the questions. You may refuse to answer any question asked of you. You may also refuse to take part in this survey or end of the survey at any time. This survey will take about 30 min. to complete.

- No: Stop ☐
- Yes: Continue ☐

Part I: Respondents' socio demographic characteristics.

Sno	Questions	Responses
1.1	Sex	1. Male 2. Female
1.2	Age	_____ years
1.3	Level of education	1. Cannot read and write 2. Can read and write 3. Primary education(Grades 1-8) 4. Secondary education 5. Tertiary education
1.4	Marital Status	1. Single 2. Married 3. Divorced 4. Widowed 5. Separated
1.5	Religion	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Other (specify)
1.6	Place of residence	1. Urban 2. Rural
1.7	Ethnicity	1. Amhara 2. Tigre 3. Oromo 4. Guragae 5. Other(Specify)

Part II**:** Respondents socio economic status

S. no	Questions	Response
2.1	Occupation?	1. House wife 2. Government employee 3. Non Government employee 4. Merchant 5. Pension 6. Farmer 7. Daily labourer 8. Other(Specify)_____
2.3	Monthly income?	_____Birr
2.4	Family size?	1. Female 2. Male 3. Total_____
2.5	Which one do you use for cooking?	1. Electricity 2. Gasoline 3. Charcoal 4. Animal Dung/Wood 5. Cylinder(Oxygen gas)
2.6	Which one do you use for travelling?	1. Private car 2. Public bus 3. Taxi 4. walk
2.7	Which one of this do you have in your house?	1. Television 1.Yes 2. No 2. Radio 1.Yes 2. No 3. Refrigerator 1.Yes 2. No 4. Car 1.Yes 2. No 5. Electric Stove 1.Yes 2. No 6. Table 1.Yes 2. No 7. Chair 1.Yes 2. No

		8. Bed 1.Yes 2. No 9. Cotton matters 1.Yes 2. No 10. Foam mattress 1.Yes 2. No 11. Gas light 1.Yes 2. No 12. Electric light 1.Yes 2. No 13. Mobile phone 1.Yes 2. No 14. Fixed phone 1.Yes 2. No
2.8	The house you are living is?	1. Private 1. Yes 2. No 2. Government 1. Yes 2. No 3. Rent 1.Yes 2. No 4. Other(Specify)_____
2.9	The number of rooms of your house?	_____rooms
2.10	The material your house is built?	1.Wall_____ 2.Roof_____ 3.Floor_____
2.11	Do you have agricultural land?	1.yes 2. No
2.11.1	If yes	----------
2.12	Do you have farm animals?	1. Yes 2. No
2.12.1	If yes, how many?	1. Cow_____ 2. Oxen_____ 3. Chicken_____ 4. Goats_____ 5. Sheep_____ 6. Horse_____ 7. Donkey_____ 8. Mule_____ 9. Other(specify)_____

Part III: Questions 23-33 are designed to assess individuals' to dietary practice

S. no	Questions	Response
3.1	Do you forget to plan the meals you eat ahead?	1. Yes 0. No
3.2	Did you miss your dietary plan yesterday?	1. Yes 0. No
3.3	Over the past two weeks, were there any days when you did not take your dietary plan properly?	1. Yes 0. No
3.4	Do you sometimes forget to comply your dietary plan with everyday life?	1. Yes 0. No
3.5	When you feel like your DM is under control, do you sometimes stop taking your dietary plan?	1. Yes 0. No
3.6	Do you ever feel hassled about sticking to your dietary plan?	1. Yes 0. No
3.7	Did you have Feelings of dietary deprivation?	1. Yes 0. No
3.8	Are you rigid, instead of flexible eating to control your DM?	1. Yes 0. No
3.9	Do you miss to include fruits in your food daily?	1. yes 0. No
3.10	Do you miss to include vegetables in your food daily?	1. Yes 0. No
3.11	Do you forget to cut down butter and fat intake in your food?	1. Yes 0. No

Part IV: Respondents' Health status/service related factors

S. no	Question	Response
4.1	Duration of disease?	_____yrs
4.2	Do you have any other chronic illness /complication that affect your feeding practice?	1. Yes 2. No
4.3	Are you given nutrition education in the clinic/hospital(based on your status)	1. Yes 2. No
4.4	Are you given journals and pamphlets (about diabetes)?	1. Yes 2. No
4.5	Do you get any visual diabetic nutrition education?	1. Yes 2. No

Part V: Respondents' behavioral and social factor

S. no	Question	Response
5.1	When you eat at a restaurant or in social events, do you make menu choices that will help control your blood sugar?	1. Yes 2. No
5.2	Do you have a habit of smoking?	1. Yes 2 .No
5.3	Do you have depression?	1.Yes 2.No
5.4	Do you forget to limit your alcohol intake?	1. yes 2. No
5.5	Do you consider holidays and other days of celebrations "free days" when you can eat whatever you want?	1. yes 2. No

5.6	Do you do physical exercise?	1.Yes 2.No
5.7	Do you check your fasting blood glucose daily?	1. Yes 2. No

Part VI: Barriers to adherence to dietary practice.

S no	Question	Response
6.1	Are the meals you eat prepared in ways that help control your diabetes?	1. Yes 2. No
6.2	Do you have difficulty choosing foods?	1 Yes 2 No
6.3	Do you have friends/ family support?	1. Yes 2. No
6.4	Do you have the understanding to the associations of diet and diabetic disease?	1. Yes 2. No
6.5	Do you have enough information about food planning to control your DM?	1. Yes 2. No
6.6	Do you think the availability of fruits and vegetables is enough?	1. Yes 2. No
6.7	Does the high cost of foods worry you?	1. Yes 2. No

Part VII. Individuals' nutritional knowledge

S. no	Question	Answer
7.1	How many servings of fruits and vegetables do you think you have to eat on daily bases?	1. Once 2. 2-4 times 3. I don't know
7.2	Which fat do experts say is most important for people to cut down on?	1. Liquid oils 2. Fats and butter 3. Not sure
7.3	According to the food pyramid Which foods do you think you have to cut down a lot	1. Fruits and vegetables 2. Carbohydrates 3. Milk and milk products 4. Sweets 5. Don't know
7.4	Which one is healthy	1.Butter 2. Olive oil 3. Don't know
7.5	How many regular meals do you think you have to eat daily	1. One meal 2. Two meals 3. Three meals 4.Don't know
7.6	How many Snacks do you think you have to eat daily	1. One snack 3. Three Snacks 2. Two snacks 4. Don't know

8. Anthropometric measurements

8.1 Weight ----------

8.2 Height ----------

9. FBG_____

Annex III: Information sheet Amharic version

የምርምር ፕሮጀክት ስም- በአዲስ አበባ ከተማ የካቲት 12 ሜዲካል ኮሌጅ ሆስፒታል የረጅም ጊዜ ክትትል ለሚያስፈልጋቸዉ በሽታዎች አገልግሎት መስጫ ክፍል የሚከታተሉ ሁለተኛዉ አይነት የስኳር ህሙማንን አመጋገብ ሁኔታ እና ተያያዥነት ያላቸዉን ምክንያቶች ማጥናት

ዋና ተመራማሪ ፡ አመልማል ወርቁ

አማካሪዎቸች ፡ ዶ/ር ሰሎሞን መኮንን እና አቶ ሞላ መሰለ
የተቋሙ ስም ጎንደር ዩንቨርሲቲ የማህበረሰብ ጤና አጠባበቅ ኢንስቲትዩት
ስፖንሰር፡ በግል
መግቢያ

ይህ የስምምነት ቅጽ አሁን እርሰዎ እንዲሳተፉበት የምንጠይቀዎትን የምርምር ጥናት የሚያብራራ ነው፡፡ በዚህ ጥናት ለመሳተፍ ከመወሰነዎ በፊት ይህን ቅጽ በጥንቃቄ በማንበብ ጥያቄዎች ካለዎት በማንኛውም ጊዜ መጠየቅ ይችላሉ፡፡

የምርምር ፕሮጀክት አላማ

የዚህ ምርምር ዓላማ አዲስ አበባ ከተማ የካቲት 12 ሜዲካል ኮሌጅ ሆስፒታል የረጅም ጊዜ የህክምና ክትትል መስጫ ክፍል የሚገኙትን ሁለተኛዉ አይነት የስኳር ህሙማን የአመጋገብ ሁኔታ እና ተያያዥነት ያላቸውን ምክንያቶች ማጥናትና መለየት ነው፡፡በእነዚህ የህብረተሰብ ክፍሎች የአመጋገብ ችግር ምን ያህል እንደሆነ እና ተያያዥ ምክንያቶችን በመለየት እና ለሚመለከታቸው ክፍሎች በማሳየት ትኩረት እንዲሰጡት ማድረግ እንፈልጋለን፡፡

የአስራር ሄደት

የተጠቀምንበት የጥናት ናሙና አወሳሰድ ቴክኒክ እርስዎን እንድናካትት አድርጎናል የመረጃ ሰብሳቢዎች ሁለተኛዉ አይነት የስኳር ህሙማን የአመጋገብ ሁኔታ ለማወቅ ጥያቄዎች ይጠይቃሉ ክብደታችውን እና ቁመታቸውን ይለካሉ በተጨማሪም የአመጋገብ ሁኔታ የተያዙ ማህበራዊ እና ስነ ህዝባዊ፣ማህበራዊ ኢኮኖሚያዊ፣ጤና ነክ እና ባህሪያዊ ጉዳዮች ዙሪያ በተመለከተ ይጠይቃሉ በዚህ ጥናት እንደሚካፈሉ ተስፋ እናደርጋለን፡፡

መጠይቁ ወደ 30 ደቂቃ ይወስዳል ከዚህም በኋላ ይጠናቀቃል።

አደጋዎች ወይም አለመመቸት

በዚህ ጥናት በመሳተፈዎ በጣም ዝቅተኛ ከሆነ አደጋ ውጭ የሚያጋጥመዎት አደጋ የለም።

የሚጠበቁ ጥቅሞች

እርስዎ በጥናቱ በመካፈለዎ እና በሚሰጡት መረጃ የሚያገኙት ጥቅም የለም በስኳር ህመም የሚኖሩ ሰዎች አመጋገብ ሁኔታና ተያያዥነት ያላቸውን ምክንያቶች በተመለከተ መረጃ ለማቅረብ እና ችግሮቻቸውን ለመቅረፍ ያስችል ዘንድ ስልቶችን ለመንደፍ ይጠቅማል። በእነዚህ ህሙማን ድጋፍ እና እንክብካቤ ዙሪያ ለሚሰሩ መንግስታዊ ያለሆኑ ድርጅት ፕሮግራሞቻቸውን ለማሻሻልም ይረዳል።

ሚስጥር መጠበቅ

የሚሰጡት መልስም ሆነ የጥናቱ ውጤት በሚስጥራዊነት ይጠበቃል። ለዚህ ጥናት የሚሰበሰበው እርስዎን የሚመለከት መረጃ በማህደር የሚቀመጥ ሲሆን ማህደሩን በእርስዎ ስም ሳይሆን በተለየ ኮድ ስለሚቀመጥ ከዋናው ተመራማሪ በስተቀር ለማንም አይገለፅም።

የተሳትፎን ክፍያ በተመለከተ

በዚህ ጥናት በመካፈለዎ ምንም የሚከፈለዎት ነገር የለም።

ፈቃደኝነት

እርስዎ በጥናቱ ውስጥ መካፈል ካልፈለጉ መሳተፍ የለብዎትም። ከጥናቱ ውስጥ በማንኛውም ጊዜ አቋርጠው መውጣት መብትዎ ነው።

በጥናቱ መካፈል በማቋረጠዎ ምንም ነገር አይባሉም በጤና ባለሙያዎች የሚሰጠዎት ድጋፍና እንክብካቤም አይጎድልብዎትም። ጥያቄ ካልዎት መረጃ ሰብሳቢውን ይጠይቁ። ወደፊትም ቢሆን ያልተረዱት ነገር ካለ ሊጠይቁ ይችላሉ። ተመራማሪዎቹ በጥናቱ ጊዜ አዲስ መረጃዎች ካጋጠማቸው ያሳውቀዎታል።

የሚያገኙት ሰው

በዚህ ጥናት ለመነጋገር ከፈለጉ እኔን

ዋና ተመራማሪ፡- አመልማል ወርቁ በስልክ ቁጥር +251-911 36 46 54 **ወይም**

አማካሪዎች ዶ/ር ሰለሞን መኮንን +251-914 73 57 48 **እና**

አቶ ሞላ መሰለ በስልክ ቁጥር +251-920 25 46 64

ጎንደር ዩኒቨርሲቲ ማህበረሰብ ጤና አጠባበቅ ኢንስቲቲዩት

በአግባቡ አልተስተናገድኩም፣በጥናቱ በመካፈሌ ተጎድቻለሁ እንዲሁም ጥያቄ አለኝ የሚሉ ከሆነ እኔን ወይም አማካሪዎችን ማነጋገር ይችላሉ፡፡

ተጎድቻለሁ ካሉ ደግሞ የህክምና አገልግሎት እንዲያገኙ ይደረጋሉ፡፡

ይህንን ቅጽ አንበብው ከሆነ እና አሁንም ሆነ በሌላ ጊዜ ጥያቄ በመጠየቅ እድል ተሰጥተዎት ከሆነ ወይም ይህ ቅጽ ተነቦና ተብራርቶለዎት ከሆነ በጥናቱ ለመሳተፍ ወይም ላለመሳተፍ መስማማትና አለመስማማተዎን ይግለፁልኝ ?

እስማማለሁ ……..

አልስማማም ……

AnnexIV. የአማርኛ መጠይቅ እና የፈቃደኝነት ማረጋገጫ ቅጽ

በጎንደር ዩኒቨርሲቲ ፣ በህክምናና ጤና ሳይንስ ኮሌጅ የህብረተሰብ ጤና አጠባበቅ ተቋም፣የስነ-ምግብ ትምህርት ክፍል እና በ አዲስ አበባ ከተማ የካቲት 12 ሜዲካል ኮሌጅ ሆስፒታል የረጂም ግዜ ክትትል ለሚያስፈልጋቸዉ በሽታዎች አገልግሎት መስጫ ክፍል የሚታከሙ ሁለተኛዉ አይነት የስኳር ህሙማን አመጋገብ ሁኔታ እና ተያያዥነት ያላቸዉን ምክንያቶች ማጥናት ።

<u>መግቢያ</u>

ሠላም እንደምን አሉ? ስሜ_____ ይባላል:: ሁለተኛዉ አይነት የስኳር ህሙማንን አመጋገብ ሁኔታ እና ቴያያዥነት ያላቸዉን ምክንያቶች በተመለከተ የተወሰኑ ጥያቄዎችን ልጠይቅ እወዳለሁ::የዚህ ምርምር ውጤት ያለውን የአመጋገብ ችግር ለመፍታት ትልቅ ዕገዛ ይኖረዋል:: ለምንጠይቅወት ጥያቄዎች የዕርስዎ ትክክለኛ መልስ በጣም አስፈላጊ ነው:: በጥያቄዎች ዙሪያ ጥርጣሬ ካደረብዎት ጠያቂውን እንደገና መጠየቅ ይችላሉ:: ከእርስዎ የምናገኘውን ማንኛውንም መረጃ በሚስጥር እንጠብቃለን:: ከዚህ ጥናት ጋር በተያያዘ በማንኛውም ቦታ እና ጊዜ ስምዎ እንደማይመዘገብና እንደማይጠቀስ ልንገልፅልዎ እንወዳለን :: ለጥናቱ የምናሳትፍዎ የእርስዎን ሙሉ ፈቃደኝነት ስናገኝ ብቻ ነው:: በመጠይቁ ያለመሳተፍ ወይም በመጠየቁ ሂደት ሊመልሱት የማይፈልጉትን ጥያቄ ያለመመለስ መብትዎ የተጠበቀ ነው::

መጠይቁ ከ 30 ደቂቃ በላይ አይፈጅም::

በመጠይቁ ለመሳተፍ ፈቃደኛ ነዎት?

1. አዎ ፈቃደኛ ነኝ ☐ መጠይቁ ይቀጥላል::
2. የለም ፈቃደኛ አይደለሁም ☐ ወደ ሌላ ::

የመለያ ቁጥር_____/_____/_____

የመረጃ ሰብሳቢ ስም_____ ፊርማ_____

መጠይቁ የተሞላበት ቀን _____ የተቆጣጣሪዉ ስም እና ፊርማ_____

ክፍል I : ማህበራዊ ሁኔታን በተመለከተ.

ተ.ቁ	ጥያቄ	ምላሽ
1.1	ፆታ	1. ወንድ 2. ሴት
1.2	ዕድሜ	_____ዓመት
1.3	የትምህርት ደረጃ	1. ማንበብ መፃፍ የማትችል/የማይችል 2. ማንበብ መፃፍ የምትችል/የሚችል 3. የመጀመሪያ ደረጃ ትምህርት(1-8) 4. የሁለተኛ ደረጃ ትምህርት(9-12) 5. ሶስተኛ ደረጃ(ሙያናቴክኒክ/ኮሌጅ ዩኒቨርሲቲ)
1.4	የጋብቻ ሁኔታ	1. ያላገባ/ች 4 በሞት የተለየባት/ችበት 2. ያገባ/ች 5. የተለያዩ 3. የተፋቱ
1.5	ሃይማኖት	1. ኦርቶዶክስ 2. ሙስሊም 3. ካቶሊክ 4. ፕሮቴስታንት 5. ሌላ ካለ ይጠቀስ_____
1.6	የመኖሪያ አድራሻ	1. ከተማ 2. ገጠር
1.7	ብሔር	1. አማራ 3. ኦሮሞ 4. ጉራጌ 2. ትግሬ 5. ሌላ ይጠቀስ_____

ክፍል II : ኢኮኖሚያዊ ሁኔታ በተመለከተ

ተ.ቁ	መጠይቅ	መልስ
2.1	የስራ ሁኔታ	1. የቤት እመቤት 5. ጡረታ 2. የመንግስት ሰራተኛ 6. ገበሬ 3. የግል ሰራተኛ 7. የቀን ሰራተኛ 4. ነጋዴ 8.ሌላ (ይጠቀስ)_____
2.3	የወር ገቢሞ ምን ያህል ነዉ?	_____ብር
2.4	በቤት ውስጥ የሚኖሩ የቤተሰብ አባላት ቁጥር ምን ያህል ነው?	ሴት_____ ወንድ_____ ድምር_____
2.5	ለማብሰያ የሚጠቀሙት ምንድን ነዉ?	1. ኤሌክትሪክ 2. ነጭ ጋዝ 3. ከሰል 4. ኩበት/ እንጨት 5. ሲሊንደር (ኦክስጅን)

2.6	ለመንገንጎነት የሚጠቀሙት ምንድን ነዉ?	1. የግል መኪና 2. የህዝብ አዉቶብስ 3. ታክሲ 4. በእግር		
2.7	የትኞቹ ቤትዎ ዉስጥ ይገኛሉ	1.ቴሌቪዥን	1. አለ	2. የለም
		2. ራዲዮ	1. አለ	2. የለም
		3. ማቀዝቀዣ	1. አለ	2. የለም
		4.መኪና	1. አለ	2. የለም
		5. የኤሌትሪክ ምጣድ	1. አለ	2. የለም
		6. ጠረጴዛ	1. አለ	2. የለም
		7. ወንበር	1. አለ	2. የለም
		8 አልጋ	1. አለ	2. የለም
		9.ጥጥ ፍራሽ	1. አለ	2. የለም
		10.ስፖንጅ ፍራሽ	1. አለ	2. የለም
		11. ኩራዝ	1. አለ	2. የለም
		12. የኤሌትሪክ መብራት	1. አለ	2. የለም
		13.ተንቀሳቃሽ ስልክ	1. አለ	2. የለም
		14. የቤት ስልክ	1. አለ	2. የለም
2.8	የሚኖሩበት ቤት የማን ነዉ ?	1. የግል 3. የኪራይ 2. የመንግስት 4. ሌላ _____		
2.9	በቤትዎ የክፍል ብዛት ምን ያህል ነዉ?	_____		
2.10	ቤትዎ የተሰራዉ ከምንድን ነዉ?	1.ግድግዳዉ_____ 2. ጣራዉ_____ 3. ወለሉ_____		
2.11	የእርሻ መሬት አለዎት?	1. አዎ 2. የለኝም		
2.11.1	አወ ካሉ	_____ገመድ/ጥማድ/ቃዳ/ካሬ		
2.12	ከብት ያረባሉ?	1. አዎ 2. አላረባም		
2.12.1	አዎ፣ ካሉ የትኞቹን እና ስንት(በቁጥር)	1.ላም _____ 2.በሬ_____ 3.ዶሮ_____ 3.ፍየል _____ 6. በግ_____ 7. ፈረስ_____ 8. አህያ_____ 9. በቅሎ_____ 10. ሌላ ካለ ይጠቀስ_____		
2.13	በባንክ ገንዘብ ያስቀምጣሉ?	1. አዎ_____ 2. አላስቀምጥም		

ክፍል III፡ የዓመጋገብ ስርዓት ሁኔታን በተመለከተ

ተ.ቁ	መጠይቅ	ምላሽ
3.1	ለሚመገቡት ምግብ ቀደም ብለዉ እቅድ ማዘጋጀት ይረሳሉ?	1. አዎ 0. አልረሳም
3.2	በትናንትናዉ እለት በዓመጋገብ ዕቅደዎ መሰርት አልተመገቡም?	1. አዎ 0.ተመግቤአልሁ
3.3	ባለፉት ሁለት ሳምንታት የዓመጋገብ ዕቅድዎትን ረስተዉ ያዉቃሉ?	1.አዎ 0. አልረሳሁም
3.4	የዓመጋገብ ሁኔታዎን ከእለት ተእለት የኑሮ ሁኔታዎ ጋር ማጣጣም ይረሳሉ?	1. አዎ 0. አልረሳም
3.5	አንዳንድ ጊዜ የደምዎ የስኳር መጠን ሲስተካከል፣ የዓመጋገብ ስረዓተዎን መከተል ያቆማሉ ?	1. አዎ 0. አላቆምም
3.6	የስኳር ህሙማን የዓመጋገብ ስርዓትን መከተል ለእርስዎ አሰልች ነዉ	1. አዎ 0. አይደለም
3.7	ብዙ መመገብ ከሚፈልጓቸዉ(ከሚወዷቸዉ) ምግቦች የተከለከሉ ይመስሎታል?	1. አዎ 0. አልተከለከልኩም
3.8	የአመጋገብ ስርዓትዎን መቀያየር ይከብደዎታል?	1.አዎ 0. አይከብደኝም
3.9	ከምግብዎ ጋር ፍራፍሬዎችን ማጠቃለል ይረሳሉ?	1.አዎ 0. አልረሳም
3.10	ከምግብዎ ጋር አትክልቶችን ማጠቃለል ይረሳሉ?	1.አዎ 0. አልረሳም
3.11	ቅባት እና ቅባትነክ የሆኑ (ቅቤ እና ስብ) መቀነስ እነዳለበዎት ይረሳሉ?	1.አዎ 0. አልረሳም

ክፍል IV : የግል ጤና ሁኔታ እና ጤና አገልገልግሎት አሰጣጥን በተመለከተ

ተ.ቁ	መጠይቅ	ምላሽ
4.1	የስኳር ህመም ከጀመረዎት ስንት ግዜ ሆነዎት?	_____ዓመት
4.2	የስክኳር ህመም አመጋገብ ስረዓተዎ ጋር የሚጋጭ(የማይስማማ) ተጨማሪ የጤና እክል አለበዎት?	1. አዎ 2. የለብኝም
4.3	በጤና ጣቢያ ወይም በሆስፒታል ስለ ስኳር ህመሙን የአመጋገብ ስርዓት የምክር አገልግሎት ይሰጠዎታል ?	1. አዎ 2. አይሰጠኝም
4.4	ለስኳር ህመሚን የአመጋገብ ስረዓትን የሚገልጹ መረጃ ጽሁፎች (ጋዜጣ ፣ በራሪ ጹሁፍ፣ መጽሄት) በወቅት ያገኛሉ?	1. አዎ 2. አላገኝም
4.5	በትዕይንት መልክ (በቴሌቪዥን) ስለ ስኳር ህመሙን የአመጋገብ ስርዓት ትምህርት አግኝተዉ ያዉቃሉ ?	1. አዎ 2. አላገኝም

ክፍልV:ባህሪያዊ እና ማህበራዊ ግንኙነት ሁኔታን በተመለከተ

ተ.ቁ	መጠይቅ	ምላሽ
5.1	ከቤት ዉጭ ሲመገቡ የአመጋገብ ስርዓትዎን በጠበቀ መልኩ ነዉ?	1. አዎ 2. አይደለም
5.2	ሲጋራ ያጨሳሉ?	1.አዎ 2. አላጨስም
5.3	የድብርት ስሜት አለበዎት?	1.አዎ 2. የለብኝም
5.4	አልኮል አብዝተዉ ይጠጣሉ ?	1.አዎ 2. አልጠጣም
5.5	በበአላት እና በ ድግስ ቀን ምግብ ሳይመርጡ የወደዱትን ይመገባሉ ?	1.አዎ 2. አልመገብም
5.6	የአካል ብቃት እንቅስቃሴ ያደርጋሉ?	1.አዎ 2. አላደርግም
5.6.1	አወ ከሆነ መልስዎ በሳምንት ስንት ቀን?	_____ቀን
5.6.2	በቀን ለስንት ደቂቃ?	_____ደቂቃ
5.7	ከምግብ በፊት ሁል ጊዜ ጠዋት ጠዋት የደመወን የስኳር መጠን ይለካሉ?	1.አዎ 2. አልለካም

ክፍል VI፡ፅኑ የአመጋገብ ስርዓትን ተግባራዊ እንዳይሆን የሚያደርጉ ችገሮች

ተ.ቁ	መጠይቅ	ምላሽ
6.1	ምግብ ሲዘጋጅልዎት የስኳር ህመምዎን መሰረት በማድረግ ነዉ?	1. አዎ 2. አይደለም
6.2	መመገብ ያለብዎትን የምግብ አይነቶች መምረጥ ይከብዶታል?	1. አዎ 2. አይከብደኝም
6.3	ስለ አመጋገብዎት ቤተሰብ እና ጓደኛ ትብብር ያደርጉሎታል?	1. አዎ 2. አያደርጉልኝም
6.4	በስኳር ህመምና በምግብ መካከል ያለዉን ግንኙነትን ያዉቃሉ?	1. አዎ 2. አላዉቅም
6.5	የስኳር ህመምን አመጋገብን በእቅድ በመምራት መቆጣጠር እንደሚቸቻል ያዉቃሉ?	1. አዎ 2. አላዉቅም
6.6	በአካባቢዎ (ገበያ ላይ) በቂ የአትክልት እና ፍራፍሬ አይነቶች ያገኛሉ?	1. አዎ 2. አላገኝም
6.7	ምግብ ለመግዛት ሲያስቡ የዋጋዉ ሁኔታ ያሳስብዎታል?	1. አዎ 2. አያሳስበኝም

ክፍል VII ፡በምግብ እና አመጋገብ ዙሪያ ያላቸዉን ዕዉቀት ለመለካት የተዘጋጀ መጠይቅ

ተ.ቁ	መጠይቅ	ምላሽ
7.1	በቀን ዉስጥ ስንት ጊዜ አትክልት እና ፍራፍሬ መመገብ አለብኝ ብለዉ ያስባሉ?	1. አንድ ጊዜ 2. ከ 2- 4 ጊዜ 3. አላዉቀዉም
7.2	ከሚከተሉት የቅባት ምግቦች በብዛት መቀነስ ያለበዎት የትኛዉን ነዉ ብለዉ ያስባሉ?	1. የማይረጉ (ፈሳሽ ቅባት) 2. የሚረጉ ቅባቶች 3. አላዉቀዉም
7.3	ከሚከተሉት መካከል አብዝተዉ መመገብ የሌለብዎት የትኛዉ ነዉ ብለዉ ያስባሉ ?	1. አትክልት እና ፍራፍሬ 2. ሃይል ሰጭ ምግቦች 3. ወተት እና ተዋፅኦዎቹ 4. በጣም ጣፋጭነት ያላቸዉን ምግቦች 5. አላዉቀዉም
7.4	የትኛዉ ለጤና ተስማሚ ነዉ ብለዉ ያስባሉ?	1. ቅቤ 2. የወይራ ዘይት 3. አላዉቀዉም
7.5	በቀን ስንት ጊዜ መመገብ አለብኝ ብለዉ ያስባሉ?	1. አንድ ጊዜ 2. ሁለት ጊዜ 3.ሶስት ጊዜ 4. አላዉቀዉም
7.6	በቀን ዉስጥ ስንት ጊዜ መክሰስ መመገብ አለብኝ ብለዉ ያስባሉ?	1. አንድ ጊዜ 2. ሁለት ጊዜ 3.ሶስት ጊዜ 4. አላዉቀዉም

- ክብደት_____ ቁመት (ሴ.ሜ)_____
- በጠዋት ከምግብ በፊት ያለዉ የደም የስኳር መጠን_____

ላደረጉልኝ ትብብር እጅግ በጣም አመሰግናለሁ!!!

Annex V: Declaration

I, the under signed, Applied Human Nutrition student declare that this thesis is my original work in partial fulfillment of the requirement for the degree of master in applied human nutrition.

Name; Amelmal Worku

Signature_____

Place of submission: Institute of public health, college of medicine and health sciences, University of Gondar.

Date of submission_____

This Thesis work has been submitted for examination with our approval as university advisor(s).

Advisor(s) Name	Signature	Date
1 Dr Solomon Mekonnen	_____	_____
2 Mr Molla Mesele	_____	_____